

REMARKS

Claims 1-14 and 17-19 are now pending in the application. Claim 1 is currently amended. Claims 15-16 are cancelled without prejudice or disclaimer. Applicant respectfully submits that the amendment of claim 1 to include the limitation of claim 15, which directly depends from claim 1, raises no new issues and respectfully requests that the Examiner enter the amendment. No claims are newly added by this amendment. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-9 and 14-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue (U.S. Pat. No. 6,798,564; "Inoue") in view of Islam (U.S. Pub. No. 2003/0133179; "Islam"). Claims 10 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of Islam in view of Mitsuda (U.S. Pat. No. 5,936,763; "Mitsuda"). Claims 11 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of Islam in view of Wai (U.S. Pub. No. 2004/0184491; "Wai"). Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of Islam in view of Yokota (U.S. Pat. No. 6,424,459; "Yokota"). These rejections are respectfully traversed.

With respect to the claimed limitation of "with the longest wavelength of the pumping light being shorter than the shortest wavelength of the signal light so as to have a frequency difference of 13.7 to 17.9 THz", the Examiner points out FIGS. 23 and 25 of Inoue (page 3, first paragraph, last six lines of the Office Action).

The wavelength of forward pumping light shown in FIG. 25 of Inoue, however, is the wavelength used for a HNL (i.e., highly nonlinear fiber) 20, as shown in FIG. 23 of Inoue. *See also* col. 15, lines 4-7. As seen in FIG. 23, the Inoue reference teaches the employment of the structure of two-stage amplifiers consisting of distributed constant Raman amplification utilizing an SMF (single-mode fiber) 30 and lumped Raman amplification utilizing the HNL 20 (see also column 14, lines 50-55 of Inoue). The five wavelengths of forward pumping light used for the SMF 30 fall within the range of 1382 to 1422 nm (see also column 14, line 66 to column 15, line 2, and FIG. 24 of Inoue).

In contrast, claim 1 has been amended so that the silica fiber is laid throughout a city. This means that the silica fiber of claim 1 is a gain medium for distributed Raman amplification, as can be understood from, for example, the following recitations in the specification of the present application.

Paragraph [0001]: "The present invention relates to a distributed Raman amplification system that optically amplifies optical signals in optical fiber installed throughout a city serving as a transmission path..."

Paragraph [0057]: "The aforementioned embodiment relates to a DRA system that performs distributed amplification of a signal light in a transmission path fiber laid throughout a city..."

Paragraph [0097]: "The optical fiber communication system...is implemented by laying the silica fibers 10, 11, 20, and 21 throughout a city..."

Paragraph [0098]: "A distributed amplification medium such as a transmission path fiber in which DSF and NZ-DSF are installed throughout a city..."

With respect to the relationship between the longest wavelength of forward pumping light, which is used for distributed Raman amplification (i.e., in FIG. 23 of

Inoue, forward pumping light supplied to the SMF 30), and the shortest wavelength of signal light, the frequency difference therebetween in Inoue does not fall within the claimed frequency range of 13.7 to 17.9 THz. This holds true for the examples in FIG. 7 and FIG. 28 as well. Accordingly, Inoue cannot be relied upon to teach or otherwise suggest the foregoing limitations.

Therefore, claim 1 patentably defines over the combination of the cited references. Accordingly, Applicant requests reconsideration and withdrawal of the rejection as to claim 1. Furthermore, claims 2-14 and 17-19 depend either directly or indirectly from claim 1. Thus, for at least the reasons provided above, claims 2-14 and 17-19 patentably define over the cited references. Reconsideration and withdrawal of the rejection of these claims is, therefore, respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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